

## Advanced Green Micropropulsion System, Phase I

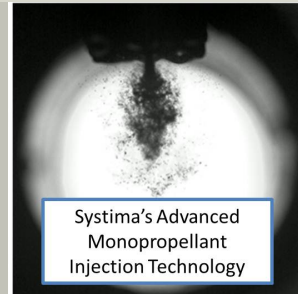
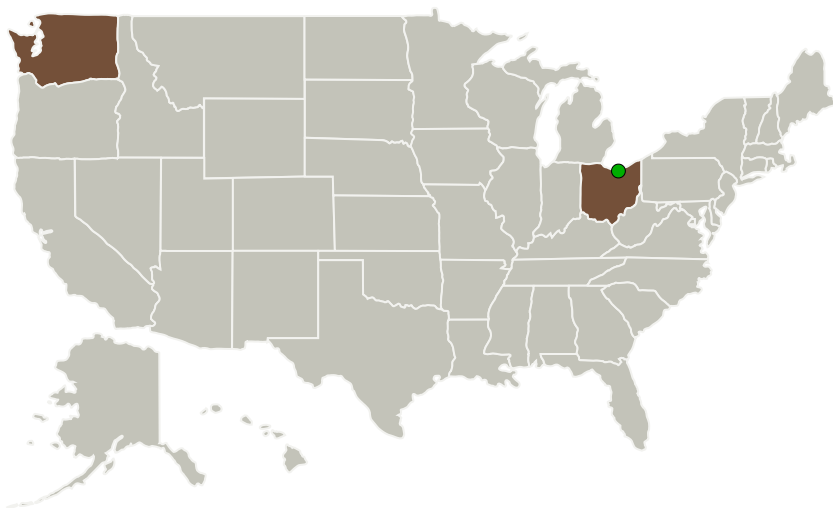
Completed Technology Project (2013 - 2014)



## Project Introduction

Systima in collaboration with the University of Washington will develop a high performance, advanced green monopropellant microthruster (0.1 – 1.0 N) for small- and micro-satellites. The microthruster utilizes a high energy density HAN-based monopropellant AF-M315E, and a novel injection system to maximize thruster performance. The propellant is non-toxic making it easy to store, integrate into modular designs and launch without added costs associated with handling toxic propellants such as hydrazine. Phase I will focus on development of the microthruster propellant injection system to deliver propellant to a miniaturized catalyst bed to provide fast response while maintaining the life of the catalyst bed. In Phase II these systems will be integrated into the full microthruster design. This effort will result in a micropropulsion system with a modular design that meets the needs of current and future small- and micro-satellites for NASA missions.

## Primary U.S. Work Locations and Key Partners



Advanced Green Micropropulsion System

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Organizations Performing Work	Role	Type	Location
Systima Technologies, Inc.	Lead Organization	Industry	Kirkland, Washington
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio
University of Washington, Department. Aeronautics & Astronautics	Supporting Organization	Academia	Seattle, Washington
University of Washington-Seattle Campus(UW)	Supporting Organization	Academia	Seattle, Washington

## Primary U.S. Work Locations

Ohio	Washington
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## Project Transitions

▶ **May 2013:** Project Start

✓ **May 2014:** Closed out

## Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140479>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Systima Technologies, Inc.

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Stephanie Sawhill

**Co-Investigator:**

Stephanie Sawhill

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### Images



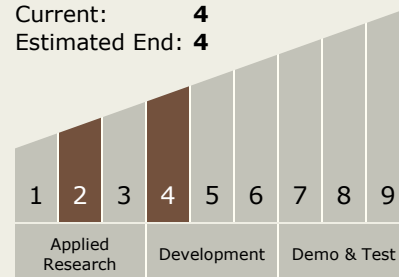
#### Project Image

Advanced Green Micropropulsion System

(<https://techport.nasa.gov/image/136062>)

### Technology Maturity (TRL)

Start: 2  
Current: 4  
Estimated End: 4



### Technology Areas

#### Primary:

- TX01 Propulsion Systems
  - TX01.1 Chemical Space Propulsion
    - TX01.1.4 Solids

### Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System